

#### XIV. NEW SPECIES OF THE GENUS TELEODUS FROM THE UPPER UINTA OF NORTHEASTERN UTAH.

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(PLATES XII-XV).

In the American Journal of Science, Vol. XXXIX, June, 1890, p. 524, Professor O. C. Marsh proposed the genus *Teleodus*, basing his description upon the greater part of the lower jaws of a specimen found near the base of the Oligocene in Dakota. In Professor Henry F. Osborn's valuable monograph on the "Titanotheres of Ancient Wyoming, Dakota, and Nebraska," Vol. I, pp. 227, 228, 481, 482, the genus is tentatively accepted. Osborn closes his discussion of *Teleodus* (p. 482) by stating that the characters available from the type suggest affinity to *Brontops* (an Oligocene genus) "and for the present we may regard the genus *Teleodus* as of subgeneric rank."

A fortunate discovery in 1929-1930 by the field-party of the Carnegie Museum in northeastern Utah (Mr. J. LeRoy Kay in charge) furnishes us with important additional knowledge of the anatomical structure of this little known genus.

In his recent monograph, referred to above, pp. 235-238, and 482, Osborn recognizes the Canadian Oligocene titanotheres "*Megacerops*" *primitivus*, also based on the greater part of the lower jaws by Lambe,\* as a distinct species of *Teleodus*. From what we have in hand we now are in a position to place the genus *Teleodus* on a more secure foundation and to considerably add to the knowledge of the osteological structure and individual variation of these forms during the known cycle of their existence. When our material is all cleared from the matrix, the present paper will be followed by a more complete description of the osteology of this new species of *Teleodus*.

#### TELEODUS Marsh.

*Generic Characters.* I.2, C.1, P.4-?3, † M.3.

3    1    4-3    3

Canines with short crowns, especially in the females. Skull brachycephalic. Bases of horns elongate oval in transverse section.

\*Contrib. Canad. Pal., Vol. III, p. 49, pl. VI, figs. 4, 5.

*Teleodus avus* Marsh (No. 10,321, Yale Museum), is based upon the greater part of the lower jaws, and was found near the base of the Oligocene of Dakota. This specimen, the type of the genus, clearly pertains to a later form, the chief features of which are: (a) the crowded condition of the lower incisors,  $I_3$  with an extremely short root and almost crowded out of its original position in the alveolar border; (b) the alveolar border of the incisors occupies a straight transverse line between the lower canines and does not extend in front of the canine teeth; (c) the cheek-teeth are relatively more developed than in other species, being broader, with more inwardly slanting external faces, especially in case of the molars.

*Teleodus primitivus* (Lambe) from the Cypress Hills of Canada is an earlier or more retardant species. In this species the alveolar border of the incisors extends well in front of the canines with a more liberal space for the incisors. Whether or not the presence of  $P_1$  in *T. primitivus* is due to the young, though adolescent, stage of the type specimen is hard to determine; but the relatively long, narrow cheek-teeth with vertical external faces, especially in the case of the molars, are characters of strong specific value. The longer diastema between the canine and  $P_1$  and the relatively long and slender mandible are additional distinctive features of *T. primitivus*. The delicately constructed canines in the type specimen may well be due to sex.

#### **Teleodus uintensis** sp. nov.

*Type*: Lower jaws, practically complete, but crushed in the symphyseal region, No. 11,809, female, Carnegie Museum.

*Paratypes*: Skull, complete, slightly depressed by crushing, No. 11,759, female, Carnegie Museum; lower jaws complete, but crushed in the region of the angle. No. 11,761, female, Carnegie Museum. In addition there are over twenty individuals from the same quarry typical of the species, which will be consulted in connection with publications of the Carnegie Museum in the near future.

*Locality*: Titanotheres Quarry, eleven miles west of Vernal, Utah.

*Horizon*: Upper Uinta (Basal Oligocene).

†In the collection from the Titanotheres Quarry of the Upper Uinta, northeastern Utah, there is one skull, No. 11,760, which I associate with the new species. This old individual has lost  $P^1$  and  $P^2$  in both jaws, the alveoli are entirely closed giving the impression that the animal never had these teeth.

In the lower jaws under study, from the same quarry,  $P_1$  is absent in both jaws, with alveoli closed in the type specimen, No. 11,809, while in the paratype, No. 11,761 this tooth is represented by the root on one side and an alveolus on the other.

*Specific Characters:* Smallest known titanotheres of the Oligocene. In anatomical structure the species is intermediate between *Teleodus avus* and *Teleodus primitivus*. Incisors as in *T. avus*, but less crowded and alveolar border slightly further advanced in front of the canines.

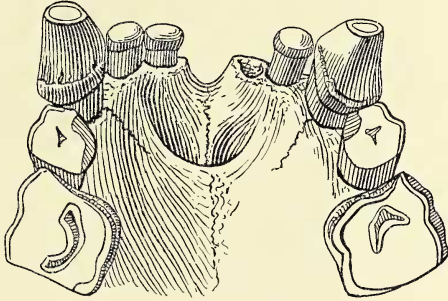


FIG. 1. Anterior dentition of skull of *Teleodus uintensis* Peterson. Carn. Mus. No. 11,759. One-half natural size.

$P_1$  present or absent. Diastema between canine and cheek-teeth present or absent. Molar-premolar dentition relatively broad and external faces of molars less vertical than in *T. primitivus* of the Canadian Oligocene.

As already stated, the female skull, No. 11,759, one of the paratypes of *Teleodus uintensis*, is perhaps less crushed and the most perfect specimen in the entire series of skulls under study. Its contour is less brachycephalic than those of the males. The small round-topped, button-like crowns of the two upper incisors of the left side are of nearly subequal size, separated from those on the right by a deep median invagination of the alveolar border. Incisor three is crowded close to the inner side of the canine. The latter is of small size (clearly a sexual character), with short and blunt crown, and a prominent posterior cingulum. Following the canine, without diastema,  $P^1$  appears nearly as broad as long and well worn, so that its detailed structure is practically obliterated. Other individuals show the structure of  $P^1$  perfectly.  $P^2$  has tetartocone indistinctly separated from deutocone.  $P^3$ , in one or two cases, is seen to have the tetartocone poorly indicated, but in the great majority of the skulls and upper dentitions under study the deuto- and tetartocones are distinctly marked. The tetartocone on  $P^4$  is small, though distinctly separated from the deutocone by a well marked constriction of the inner lobe. The inner cingula of the premolars are usually well indicated, while externally they vary in different individuals. In the

paratype, No. 11,759, the hypocone of  $M^3$  is distinct and of large size, but in most cases this element is small and has no diagnostic value, due to variation in the different specimens. The parietals, in all the skulls from the new quarry in the Upper Uinta, present a prominent convexity, which is especially well developed on male skulls. This convexity is observed in the crania of other Oligocene titanotheres, e.g. *Brontops*, *Megacerops*, *Brontotherium*, but not so general or proportionately as large as in the species from the Upper Uinta.

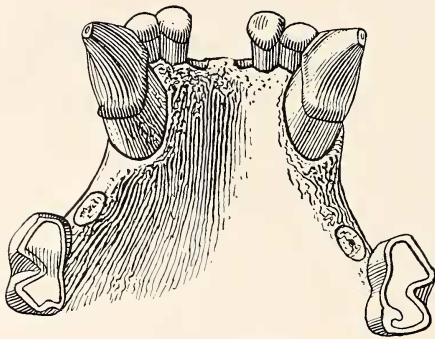


FIG. 2. Anterior dentition of lower jaw of *Teleodus uintensis* Peterson. Carn. Mus. No. 11,761, paratype. One-half natural size.

In the type No. 11, 809, the mental foramen is located below  $P_4$  while in the paratype No. 11,761, this foramen is below  $P_3$ . This discrepancy is in part due to crushing of both specimens. The anterior part of the symphysis in the paratype is much depressed by crushing. The incisor alveolar border of the type is imperfect, while in the paratype it is complete, and there is a space between the median incisors of about five millimeters.  $I_1$  and  $I_3$  are subequal in size. The canine is small, with a postero-internal basal cingulum projecting at the base of the crown. In the type the diastema between the canine and premolars is much shortened by crushing, while in the paratype it is equally clear that the diastema is lengthened and the symphysis in general has a procumbent and unnatural appearance due to crushing from above downward. This crushing is also observed in the region of the condyle and the coronoid process, see Pl. XV. In the type  $P_1$  is absent in both jaws, while in the paratype this tooth is represented by the root on the left and by an alveole on the right side. The rest of the cheek-teeth are much worn in both specimens. The

cingula are rather weak, while the teeth are relatively broad, when compared with *T. primitivus* of Canada, and relatively less broad than in *T. avus*.

## MEASUREMENTS

	Paratype No. 11,759
Greatest length of skull, condyle to incisive alveolar border.....	515 mm.
Length of skull, anterior margin of orbit to incisive alveolar border.....	132 mm.
Length of skull, occipital condyle to anterior border of orbit.....	390 mm.
Transverse diameter of skull at base of horn-cores.....	160 mm.
Transverse diameter of skull opposite postorbital processes.....	204 mm.
Transverse diameter of skull in front of occiput.....	100 mm.
Transverse diameter of occiput.....	168 mm.
Greatest transverse expanse at zygomatic arches.....	300 mm.
Length of molar-premolar series.....	230 mm.
"    "    premolar series.....	88 mm.
"    "    molar series.....	140 mm.
"    "    P <sup>1</sup> .....	14 mm.
"    "    P <sup>2</sup> .....	20 mm.
"    "    P <sup>3</sup> .....	27 mm.
"    "    P <sup>4</sup> .....	30 mm.
"    "    M <sup>1</sup> .....	36 mm.
"    "    M <sup>2</sup> .....	50 mm.
"    "    M <sup>3</sup> .....	55 mm.
Breadth of P <sup>1</sup> .....	14 mm.
"    "    P <sup>2</sup> .....	24 mm.
"    "    P <sup>3</sup> .....	29 mm.
"    "    P <sup>4</sup> .....	32 mm.
"    "    M <sup>1</sup> .....	39 mm.
"    "    M <sup>2</sup> .....	49 mm.
"    "    M <sup>3</sup> .....	53 mm.

Due to the crushing of the specimens the following measurements are only approximate.

	Type 11,809	Paratype 11,761
Greatest length of mandible from the angle to incisors.....	425 mm.	422* mm.
Height of mandible at coronoid process.....	236 mm.	
Height of mandible at M <sub>3</sub> .....	73 mm.	67* mm.
Height of mandible at P <sub>4</sub> .....	66 mm.	53* mm.
Length of molar-premolar series.....	237 mm.	212 mm.
"    "    premolar series P <sub>2</sub> -P <sub>4</sub> .....	78 mm.	67 mm.
"    "    the molar series.....	163 mm.	145 mm.
"    "    P <sub>2</sub> .....	22 mm.	20 mm.
"    "    P <sub>3</sub> .....	24 mm.	22 mm.

\*Measurement unreliable due to crushing.

	Type	Paratype
	11.809	11.761
Length of P <sub>4</sub> .....	31 mm.	26 mm.
“ “ M <sub>1</sub> .....	35 mm.	34 mm.
“ “ M <sub>2</sub> .....	50 mm.	47 mm.
“ “ M <sub>3</sub> .....	78 mm.	65 mm.
Breadth of P <sub>2</sub> .....	15 mm.	11 mm.
“ “ P <sub>3</sub> .....	19 mm.	15 mm.
“ “ P <sub>4</sub> .....	22 mm.	19 mm.
“ “ M <sub>1</sub> .....	24 mm.	23 mm.
“ “ M <sub>2</sub> .....	32 mm.	27 mm.
“ “ M <sub>3</sub> .....	32 mm.	28 mm.